ORIGINAL ARTICLE

EDUCATIONAL INTERVENTION IN A NURSING TEAM ON ORAL HYGIENE OF CRITICALLY ILL PATIENTS IN AN INTENSIVE CARE UNIT

INTERVENÇÃO EDUCATIVA EM UMA EQUIPE DE ENFERMAGEM SOBRE HIGIENE BUCAL DE PACIENTES CRÍTICOS NA UNIDADE DE TERAPIA INTENSIVA

Milena Rayane de Andrade Teixeira[1], Michelline Cavalcanti Toscano de Brito[2], Sabrina Sales Lins de Albuquerque[2], Ângelo Brito Pereira de Melo[2]

ABSTRACT

Ventilator-associated pneumonia (VAP) is a type of recurrent infection in critical patients admitted to the Intensive Care Unit (ICU) and has high morbidity and mortality rates. Its pathogenesis results from the introduction of oral microbiota bacilli passed from the orotracqueal tube to the lower respiratory tract, functioning as a potential reservoir of infectious material. The aim of this study is to assess the knowledge of an ICU nursing team on oral hygiene (OH) in critically ill patients under hospitalization and, from the data obtained, to elaborate an informative material on the main issues pointed out. It is an exploratory, descriptive and quantitative study carried out in two stages: the application of a questionnaire to analyze the team's knowledge on oral hygiene methods as a measure of disease prevention; and the preparation of an educational booklet with approaches on the subject in order to inform and update the participants. We counted with the collaboration of 65 professionals, mostly female and aged between 31-40 years. As for oral hygiene in patients under mechanical ventilation, most of the participants answered that they had not received information on the subject during professional training, as well as not having knowledge of the protocol for these procedures in the institution they were working. All of them agreed that oral hygiene is important in critically ill patients. However, the majority did not associate it with the prevention of VAP. Thus, the implementation and supervision of interdisciplinary actions to promote oral health in critically ill patients under hospitalization is capable of promoting a standardized conduct, as well as better care for the individual admitted in the ICU.

Keywords: Ventilator-associated pneumonia; Intensive Care Unit; Patient care team; Oral hygiene; Health education.

RESUMO

A pneumonia associada à ventilação mecânica (PAVM) é um tipo de infecção recorrente em pacientes críticos sob internação na Unidade de Terapia Intensiva (UTI) e apresenta altos índices de morbimortalidade. Sua patogênese decorre da introdução de bacilos da microbiota oral passados do tubo orotraqueal para o trato respiratório inferior, funcionando como um potencial reservatório de material infeccioso. O objetivo desse estudo foi avaliar os conhecimentos de uma equipe de enfermagem de UTI sobre a Higiene Bucal em pacientes críticos sob internação e, a partir das informações obtidas, elaborar um material informativo sobre as principais questões apontadas. Foi um estudo exploratório, descritivo e quantitativo realizado em duas etapas: a aplicação de um questionário para analisar os conhecimentos da equipe sobre os métodos de higiene bucal, como medida de prevenção da enfermidade; e a elaboração de um folheto educativo com abordagens sobre o tema, no intuito de informar e atualizar os participantes. Obteve a colaboração de 65 profissionais, em sua maioria do sexo feminino e da faixa etária entre 31-40 anos. Sobre a higiene bucal no paciente em ventilação mecânica, a maior parte respondeu não ter recebido informações sobre o tema durante a formação profissional, bem como não ter conhecimento do protocolo destinado a este procedimento na Instituição de trabalho. Em sua totalidade, consideraram importante a higiene bucal em pacientes críticos. No entanto, a maioria não a associou com a prevenção de PAVM. Assim, a implantação e supervisão de ações interdisciplinares de promoção à saúde bucal em pacientes críticos sob internação é capaz de promover uma conduta padronizada e uma melhor assistência ao indivíduo na UTI.

Palavras-chave: Pneumonia associada à ventilação mecânica; Unidade de Terapia Intensiva; Equipe de assistência ao paciente; Higiene bucal; Educação em saúde.

[1] Multiprofessional Residence in Hospital Health, Federal University of Paraíba, João Pessoa, Brazil.
[2] Department of Dentistry, Federal University of Paraíba, João Pessoa, Brazil.

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INTRODUCTION

Ventilator-associated pneumonia (VAP) is a healthcare-associated infection (HAI) that represents a prolonged hospital stay and high hospital expenses for patients in Intensive Care Units (ICUs) (1-6). It affects the pulmonary parenchyma from 9% to 27% of patients on mechanical ventilation (MV) (7), mainly male patients (8), and is a therapeutic challenge given it presents a mortality risk of 8.1% to 31.9% (9), reaching the mark of 50% in some cases (10). Its pathogenesis results from the introduction of oral microbiota bacilli passed from the orotracqueal tube to the lower respiratory tract, functioning as a potential reservoir of infectious material (6,11,12).

Oral bacteria in a mechanically ventilated patient may become more virulent after 48 hours of orotracheal intubation (3,10,13), and the extravasation and aspiration of secretions reaching the lungs are the main triggers of VAP (1,4,6,11,12). Each day of MV stay corresponds to a 1% to 3% risk of occurrence, with the first five days being those with the highest risk of occurrence. However, agents with a multidrug-resistant profile predominate in late-onset pneumonia (3), and *Acinetobacter baumannii* is the the most commonly found in cases (5,14).

Samples collected from dental and lingual biofilm reveal a 63% presence of microorganisms formed in the connection of the humidifier in intubated patients and the highest frequencies found as a source of colonization are associated with Gram-negative bacilli, responsible for about 60% of pneumonias (15), such as *Pseudomonas aeruginosa (5,13), Acinetobacter spp, Staphylococcus aureus, Enterobacter spp, Proteus mirabiis, Klebsiella pneumoniae, Escherichia colli, (5,15) and Acinetobacter baumannii* (13,15). Moreover, periodontal pathogens such as *Pseudomonas aeruginosa, Staphylococcus aureus, and Porphyromonas gingivalis* were common to both environments (16).

Among the main risk factors that trigger VAP are: longer MV stay; underlying disease; unplanned extubation; nasoenteral tube diet with gastric positioning; previous antibiotic therapy; and tracheostomy (17). Hence, the adhesion to a set of infection prevention actions – bundle - by means of measures such as elevation of the headboard to 30º/40º; daily assessment of sedation and performance of weaning protocols; cuff pressure checks every 8 hours and maintenance between 20-30 cm/HO; hand washing; and oral hygiene (OH) with chlorhexidine are indicated as attention conditions to VAP (7,13,18, 17, 19).

In this context, the nursing team plays an important role in care related to the use of MV in the ICU, as well as in the control and prevention of infections (18,17,20,21). It is fundamental to implement standardized protocols and conducts that contribute to the better adhering of professionals to care practices in ICUs (14,17,18,19) for preventing the effects of a poor OH and, therefore, the incidence of VAP (2,17,21,22). Thus, the aim of this study is to assess the knowledge of an ICU nursing team on OH in critically ill patients under hospitalization and, from the data obtained, to elaborate an informative material on the main issues pointed out.

METHODS

This is an exploratory, descriptive, and quantitative study carried out with nursing professionals of the ICU of the University Hospital Lauro Wanderley (HULW) in João Pessoa, Paraíba, Brazil, between 2016 and 2017. The ICU has an adult general profile and assists clinical and surgical patients. The research was approved by the Research Ethics Committee of HULW under CAAE (Certificate of Application for Ethical Appraisal) 51758815.8.0000.5183. All of the participants signed an Informed Consent Form elaborated in compliance with CNS (National Health Council) Resolution no. 466 dated 2012. We included ICU nurses and nursing technicians who were available to participate and excluded professionals that, due to vacation, service scales, or work demands, were not available to collaborate.

The study was divided into two stages. The first one being the application of a questionnaire that was elaborated by the authors in order to assess the knowledge of the nursing team from the ICU on OH in critically ill patients under hospitalization. The questionnaire consisted of the following variables: gender; age; working time; professional category; specialization course; working time in the ICU; VAP triggering mechanisms; receiving guidance on OH orientations during vocational training; importance of the procedure; OH routine in the institution; presence of protocol; optimal frequency of achievement; materials used; and the relationship between OH and VAP. Secondly, an educational intervention was carried out through the elaboration and distribution of an educational booklet with approaches on the subject to inform and update the participants, illustrating the main answers and divergences obtained in the questionnaire. Microsoft Word® and Canva_1689 ®were used to make the informative booklets. The questionnaires and informative booklets addressed a content based on the standardization of the OH technique for critically ill patients under hospitalization of the SOP (Standard Operational Procedure) ellaborated by the AMIB (Brazilian Society of Intensive Care) (23) (Figure 1).

UNIVERSIDADE FEDERAL DA PARAÍBA – UFPB
HOSPITAL UNIVERSITÁRIO LAURO WANDERLEY – HULW
RESIDÊNCIA INTEGRADA MULTIPROFISSIONAL EM SAÚDE HOSPITALAR – RIMUSH
ÊNFASE EM ATENÇÃO AO PACIENTE CRÍTICO
NÚCLEO DE ODONTOLOGIA

ORAL HYGIENE IN CRITICALLY ILL PATIENTS UNDER HOSPITALIZATION – A PREVENTION MEASURE FOR VENTILATOR-ASSOCIATED PNEUMONIA – VAP

Resident: Milena Rayane de Andrade Teixeira
RIMUSH – 2017
(2021 update version)

WHAT IS VAP?

VENTILATOR-ASSOCIATED PNEUMONIA (VAP) IS AN INFFECTION THAT AFFECTS THE PULMONARY PARENCHYMA OF 9% TO 27% OF PATIENTS ON MECHANICAL VENTILATION (MV) (1). IT OCCURS, MAINLY, DUE TO THE ASPIRATION OF ORAL MICROBIOTA BACILLI PASSED FROM THE OROTRACQUEAL TUBE TO THE LOWER RESPIRATORY TRACT, WHICH FUNCTIONS AS A POTENTIAL RESERVOIR OF INFECTIOUS MATERIAL (2,3).

STANDARD OPERATIONAL PROCEDURE - SOP

OBJETIVOS:

- ✓ ORAL HYGIENE ROUTINE BY A MULTIPROFESSIONAL TEAM – NURSING AND DENTISTRY (4).

RECOMMENDED MATERIALS/DRUGS/ EQUIPMENTS/INSTRUMENTS:

- ✓ PPE: APRON, DISPOSABLE MASK AND CAP, PROCEDURE GLOVES, HARD HAT, GOGGLES, CLOSED-TOE SHOES;
- ✓ TOOTHBRUSH (SMALL HEAD AND SOFT BRISTLES);
- ✓ TONGUE SCRAPER (OPTIONAL);
- ✓ TWEEZERS; GAUZE PAD;
- ✓ SUCTION PROBES;
- ✓ SWAB SPONGE;
- ✓ 10 ML OF 0.12% AQUEOUS CHLORHEXIDINE DICLUGONATE SOLUTION;
- ✓ DISPOSABLE CUP/RECIPIENT;
- ✓ SALINE SOLUTION 0.9%;
- ✓ LIP MOISTURIZER (4)

PROCEDURES PERFORMED BEFORE ORAL HYGIENE

- ✓ PERFORM THE EXTRA- AND INTRAORAL ASSESSMENT (HARD AND SOFT TISSUES);

√ OBSERVATION OF SALIVARY CHANGES (HIPO- AND HIPPERSALIVATION);
√ DENTAL MOBILITY, BLEEDING, TRAUMATIC AND INFECTIVE LESIONS OF MUCOUS MEMBRANES, LIPS OR PERIBUCAL EDEMA;
√ DETECTION OF THE PRESENCE OF TEMPORARY ORTHOSES/DENTAL PROSTHESIS OR OCCLUDERS, PROCEEDING WITH THEIR REMOVAL BEFORE STARTING ORAL HYGIENE;
√ CLEANNING THE PROSTHESES WITH 0.12% CHLORHEXIDINE AND DELIVERING THEM TO THE PATIENT'S FAMILY OR THE NURSING TEAM. REGISTERING THE NAME OF THE PERSON THAT RECEIVED THE PROSTHESES IN THE MEDICAL RECORD;
√ EVALUATION OF POSSIBLE NEED FOR DENTAL INTERVENTION (4).

ORAL HYGIENE PROTOCOL:

1. PERFORM THE ASPIRATION OF BOTH THE ORAL CAVITY AND OROPHARYNX;
2. OBSERVE IF THE OROTRACHEAL TUBE IS CORRECTLY POSITIONED BEFORE PERFORMING THE ORAL HYGIENE;
3. POSITION THE PATIENT BY KEEPING THE HEADBOARD ELEVATED (FROM 30º TO 45º) AND LOWER SIDE GRID ON THE WORKING SIDE UNLESS IT IS NOT INDICATED BY THE MULTIDISCIPLINARY TEAM.
4. SOAK THE GAUZE IN NON-ALCOHOLIC CHLORHEXIDINE FOR DEBRIS REMOVAL;
5. CLEAN THE TEETH WITH GAUZE AND SPATULA, BRUSH, OR SWAB SOAKED IN AQUEOUS SOLUTION OR 0.12% CHLORHEXIDINE DIGLUCONATE GEL;
6. USE 20 ML SYRINGES WITH PLUNGER AS A RUBBER MOUTH OPENER (IT SHOULD BE ATTACHED TO THE DENTAL FLOSS FOR AVOIDING ACCIDENTAL SWALLOWING) OR A SET OF STERILE WOODEN SPATULAS WRAPPED IN GAUZE, MASKING TAPE, AND GLOVES, IF NECESSARY;
7. WRAP THE GAUZE IN THE FINGERS MOISTENED WITH 0.12% CHLORHEXIDINE SOLUTION (OR THE TONGUE SCRAPER) AND SIDE, SCRAPING THE TONGUE, THE VESTIBULES, CHEEKS, PALATE, AND GUMS OF BOTH DENTAL ARCHES;
8. PERFORM SWEEPING MOVEMENTS FROM THE GUMS TOWARDS THE TEETH, SMOOTHLY AND REPEATEDLY, THROUGH THE BUCCAL AND LINGUAL FACES OF ALL TEETH AND CHEWING SURFACES. FOR EDENTULOUS PATIENTS, SANITIZE THE GINGIVAL RIDGE;
9. CLEAN THE OROTRACHEAL TUBE WITH GAUZE SOAKED IN 0.12% CHLORHEXIDINE SOLUTION;
10. ASPIRATE THE ORAL CAVITY AND OROPHARYNX AGAIN;
11. REHYDRATE THE LABIAL MUCOSA;
12. DISPENSE CONTAMINATED MATERIAL IN AN ADEQUATE PLACE;
13. TURN OFF THE ASPIRATING TOOL AND LIFT THE SIDE GRID;
14. WASH YOUR HANDS;
15. UPDATE THE PATIENT'S PROGRESS IN THE CLINICAL RECORD (4).

ORAL HYGIENE IS ABLE TO PREVENT THE ADVANCE OF BACTERIA FROM THE ORAL CAVITY TO THE RESPIRATORY TRACT! IT IS CRUCIAL TO REDUCE VENTILATOR-ASSOCIATED PNEUMONIA (VAP) (2,3).

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Figure 1 - *Diagramming of the booklet on description of SOP for OH.*
Source: Based on the AMIB SOB and adapted by the authors. João Pessoa, Paraíba State, Brazil. AMIB Update, 2021.

The data obtained were tabulated and analyzed by the Statistical Package for Social Sciences (SPSS) software, version 26.0, for Windows, using descriptive statistics. The population included 78 individuals, from which a simple random probabilistic sample of 65 professionals was extracted according to the sample calculation with sampling error of 5% and a confidence level of 95% according to an online calculator (24).

RESULTS

We randomly included 65 professionals: 14 nurse assistants and 51 nursing technicians distributed in the different work shifts (alternate morning, afternoon, and night). The completion of the instrument had an estimated time of 10 minutes for each participant and was performed during the work shift. The participants were mainly female and aged between 31-40 years. As for the professional category, the majority of the participants were nursing technicians (Table 1).

TABLE 1 - PARTICIPANTS' PROFILE.

VARIABLES	SAMPLE (n = 65)	
	n	%
Sex		
Male	20	30.7
Female	45	69.3
Age group (years)		
20-30	10	15.4
31-40	29	44.6
41-50	16	24.6
51-60	8	12.3
61-70	2	3.1
Professional category		
Nurses	14	21.4
Nursing technicians	51	78.6

Regarding working time, most professionals reported having more than five years of professional experience. Nonetheless, as for the period of work in the ICU, most nurses reported having provided care for more than five years in the sector, while technicians reported having from one to five years of experience in the ICU. Regarding professional updating (i.e., engaging in specialization or improvement courses), there was a predominance of having engaged in some course in the group of nurses. Nursing technicians, on the other hand, did not (Table 2).

TABLE 2 - WORKING TIME, TIME SPEND IN ICU, UPDATING, AND COURSES.

VARIABLES	NURSES (n = 14)		NURSING TECHNICIANS (n = 51)	
	n	%	n	%
Working time (years)				
<1	0	0	0	0
1-5	4	28.5	18	35.3
>5	10	71.5	33	64.7
Working time in ICU (years)				
<1	3	21.4	12	23.5
1-5	4	28.6	24	47
>5	7	50	15	29.5
Update on specialization courses Improvement				
Yes	13	92.9	24	47
No	1	7.1	27	53
Specialization/improvement courses				
Audit in Nursing	1	7.1	0	0
Hemodialysis	0	0	1	2
Family Health	1	7.1	1	2
Public Health	0	0	1	2
Wounds and Dressings	1	7.1	2	4
Surgical Instrumentation	0	0	2	4
Workplace Safety Nursing	4	28.6	3	5.9
Cardiology Nursing	2	14.3	1	2
Urgencies and Emergencies	2	14.3	3	5.9
ICU Nursing	6	42.9	8	15.7
Nephrology Nursing	1	7.1	2	4
Hemodynamics Nursing	1	7.1	1	2
Public Health Management	2	14.3	0	0

Regarding OH in critically ill patients under hospitalization, all participants stated that it is important to perform the procedure in the ICU. Although more than one response has been reported, most have associated this care with the prevention of the spread of infections in the oropharynx. However, concerning guidelines on the oral health theme during vocational training, both nurses and nursing technicians reported not having received information on the subject. When asked which patient this procedure is most important to, most of the group answered that it is important for all, regardless of severity or type of invasive support (Table 3).

TABLE 3 - IMPORTANCE OF OH IN CRITICALLY ILL PATIENTS.

VARIABLES	NURSES (n = 14)		NURSING TECHNICIANS (n = 51)	
	n	%	n	%
Consider OH important				
Yes	14	100	51	100
No	0	0	0	0
Importance of OH in critically ill patient				
Well-being state	3	21.4	9	17.6
Better oral health	8	57.1	8	15.7
Prevention of oral cavity infection	7	50	15	29.4
Prevention of infections in oropharynx	13	92.9	24	47
Guidance during vocational training				
Yes	4	28.5	11	21.6
No	10	71.5	40	78.5
Important for invasively supportive patient				
Via oral route	0	0	0	0
Via nasoentereal probe	0	0	0	0
Nasoenteral probe and orotracheral tube	4	29	4	7.9
All patients	8	57.1	47	92.2

Regarding the routine of OH at the institution, nurses and nursing technicians reported having knowledge of the routine. Though, the majority of the sample group stated that they did not have information about the protocol for this procedure. As for the frequency of performance, both categories (i.e., nurses and nursing technicians) stated that the ideal frequency of OH is three times a day. Among the material used, all of the professionals mentioned the use of personal protective equipment (PPE), followed by aqueous solution of chlorhexidine digluconate at 0,12% (Table 4).

TABLE 4- ROUTINE, PROTOCOL, FREQUENCY, AND MATERIALS USED FOR OH IN CRITICALLY ILL PATIENTS.

VARIABLES	NURSES (n = 14)		NURSING TECHNICIANS (n = 51)	
	n	%	n	%
Knows the OH routine for critically ill patients				
Yes	8	57.2	43	84.3
No	6	42.9	8	15.7
OH frequency for the critically ill patient				
1/day	3	21.4	3	5.9
2/day	3	21.4	9	17.8
3/day	5	35.7	28	55
4 or more/day	3	21.4	11	21.2
Knows the institution's OH protocol				
Yes	4	28.5	4	7.8
No	9	64.3	45	88.2
Unanswered	1	7.2	2	4
Materials used to carry out OH				
PPE	14	100	51	100
Toothbrush	8	57.1	35	68.6
Tongue scraper	4	28.6	24	47
Gauze	14	100	37	72.5
Suction system	7	50	25	49
Aqueous chlorhexidine digluconate solution 0,12%	10	71.4	37	72.5
Disposable cup/container	8	57.1	37	72.5
Lip moisturizer	10	71.4	37	72.5
Wooden spatula	10	71.4	27	53
Toothpaste	8	57.1	35	68.6
Saline solution/distilled water	4	28.6	14	39.2

As for the knowledge related to VAP, nurses and nursing technicians cited as the main trigger mechanism the aspiration of contamined secretion from the oral cavity and oropharynx. Most nurses related OH to the prevention of systemic infections, such as bacterial endocarditis and sepsis. The nursing technicians linked OH with maintaining the healthy state of the mouth, teeth, gums, and lips (Table 5).

TABLE 5 - MAIN TRIGGERING MECHANISM OF VAP AND THE RELATIONSHIP OF OH WITH THE CRITICALLY ILL PATIENT.

VARIABLES	NURSES (n = 14)		NURSING TECHNICIANS (n = 51)	
	n	%	n	%
Main VAP triggering mechanism				
Reflux of the gastrointestinal tract	0	0	11	21.6
Aspiration of mouth and oropharynx secretion	10	71.4	24	47
Hematogenous dissemination	0	0	2	3.9
Exogenous inoculation of contaminated material	4	28.6	12	23.6
Person to person transmission	0	0	0	0
Not answered	0	0	2	3.9
Relationship of OH with the critically ill patient				
Comfort and well-being	0	0	0	0
Bacteria disposal	2	14.3	5	9.8
Healthy state of mouth, teeth, gums, and lips	3	21.4	21	41.1
VAP prevention	3	21.4	11	21.6
Prevention of bacterial endocarditis and sepsis	6	42.9	14	27.5

DISCUSSION

VAP is the most common nosocomial pneumonia that occurs among patientd admitted to ICUs (25). The MV bundle implementation during nursing care, through a set of practices based on scientific evidence for the control of hospital infection and better prognosis of the patient, seems to be the strategy adopted for the prevention and control of possible adverse events (17,19).

The study, aimed at focusing on the importance of carrying out OH in ICU, revealed that all participants agree with this practice. Nonetheless, there was no common ground regarding the knowledge about the procedures and the technique applied. The literature points out that the most rigorously studied oral antiseptic regarding the prevention of VAP is chlorhexidine and that OH protocols are composed, mainly, of this solution (10,12), therefore in accordance with this study, in which the 0.12% chlorhexidine digluconate solution was the most cited one.

The answers to the questionnaire revealed differences in relation to the frequency of OH, suggesting that there is no oral care routine in the hospital ICU. These results are in compliance with the fact that the participants reported not having received guidance during professional training and not having knowledge of the OH protocol of the institution. Given this scenario, studies that implemented OH care with 0.12% chlorhexidine achieved positive results in the reduction of VAP (22,26). Güler and Türk demonstrated that the application frequency should be observed, since its concentrations vary from 0.12%, 0.2%, and 2% (27).

Concentrations of 0.12% to 2% have a wide spectrum of action on gram-positive, gram-negative bacteria, fungi, yeasts, and lipophilic viruses, in addition to having 12-hour substantivity (6,10,19). However, the authors disagree as to the frequency of application in which the literature cites a greater efficacy with the use of the substance every 8 hours (28,29). On the other hand, there are also satisfactory results when used twice a day, reducing between 80% to 90% os microorganisms in salive (6,10,19). Thus, this rinse associated with efficient brushing and aspiration of accumulated secretions near the endotracheal tube, showed positive results in reducing the incidence of VAP (11,12).

In a study to assess the effects of OH on the incidence of infections in patients undergoing MV in the ICU, the 0.12% chlorhexidine solution or gel is associated with a 40% reduction in the chances of developing pneumonia in critically ill adults, although there is no evidence in the results of mortality, duration of MV, or staying period in the ICU (11). The use of 0.12% chlorhexidine in patients undergoing MV may present 50% more survival when compared to those who do not use any OH technique in the ICU (30). It is well known that this rinse may have minimal and reversible side effects with the suspension of use, such as unpleasant taste, mild irritation of the mucosa, staining of the teeth, and dysgeusia. Despite of these effects, benefits surpass disadvantages (31).

The MV use causes a reduction in saliva production, favoring the appearance of dental biofilm (9,22). Thus, periodontal disease, mainly caused by this microbial reservoir, is also strongly associated with nosocomial pneumonia since patients hospitalized with this condition are more likely to develop the disease (16). Hence, it is clear that there was no agreement between the participants on the links of the critically ill patient, OH, and the systemic diseases. It is important to note that the oral cavity works as a focus on the set of agents capable of producing pathologies, such as bacterial endocarditis, periodontal diseases, and oral candidiasis; also, maintaining a care routine goes beyond comfort, since it is essential to reduce changes in the microbiota and the development of infections (6,25). Many studies have demonstrated the importance of OH in patients under MV and the reduction of infection rates after the implementation of an oral care protocol (1,6,7,10,17,18,22,25,31).

Among the risk factors identified in the studies as triggers of VAP are: reintubation (5), which increases the risk by 9.36 times (32); smoking and high injury severity score (7,14); advanced age and malnutrition (5); lower level of consciousness; and previous use of antibiotics of the carbapenem class (14). Another relevant factor was the need for tracheostomy, in which authors emphasized that this procedure weakens the upper respiratory tract, causing damage to physiological functions and defense mechanisms (14,33). Likewise, another risk factor is the non-appropriate performance of aspiration of the airways, since the excess secretion in the pulmonary structures of passages can decrease the vagal nervous response and cause cough, therefore intensifying microbial proliferation (10,18).

We observed that the entirety team of the nursing considers OH important for critically ill patients under hospitalization, mainly due to the prevention of spread of oropharyngeal infections, which highlights the care with the risk of aspiration of contaminated oral secretion, although they have not associated this care with VAP prevention. Given this, the data obtained in this study are in accordance with results obtained in the literature (6,10,11,17,18,20). In another study, to identify nursing care in patients undergoing MV in the ICU, among the prescribed interventions, keeping the head elevated to 30º and checking the positioning of the orotracheal tube or tracheostomy were the most found nursing care (34). Thus, the authors point out the importance of improvements on the use of VAP prevention protocols, therefore contributing to the reduction of hospital stay, complications, and infections associated with MV (25,27,31).

It is crucial to ascertain the knowledge and attitude of professionals working in ICUs so that interventions are planned with the team on the application of VAP prevention measures (3,12). For this, the adoption of bundles works as a package of measures based on scientific evidence integrated with the practice of prevention aimed at reducing the lack of information and improving professional conduct (3,12,17). The greater the adherence to good practices in the ICU, the lower the risk of VAP (1,3,7,10,13,22,35). These standardized protocols are considered safe, efficient, low-cost, increase the quality of care provided to the patient and present positive results when applied by the nursing team (3). In a recent study, the application of a bundle of shares achieved an 81% reduction in VAP (7). In another analysis, adherence to the bundle package was satisfactory in 92.0% of cases (36). It is noticeable that educational measures play an important role in the prevention of infections and function as a good strategy in the prevention of HAIs (6,12,25,37). The study noted that the knowledge and preparation of the nursing team to perform OH on intubated patients is inconsistent. Thus, it is essential to implement and supervise an interdisciplinary protocol for oral health promotion of critically ill patients undergoing hospitalization – a SOP – promoting an approximation between the sciences of dentistry and nursing, respecting

the approach of action of each of these areas and enabling comprehensive care to the individual.

Health work is operationalized through well-structured knowledge that integrates technologies that can assist in the care of patients under intensive care (22). In order to solve failures and improve patient care, the research sought to modify learning actions and obtain effective results through educational tactics with nursing teams to prevent VAP (3,10,22,35). As an alternative for collaboration in ICU activities, digital technology is mentioned, a tool that is capable of improving nursing intervention during MV and assisting in planning team actions, promoting safer and more effective patient care (38).

The booklets were used as instruments to enhance the actions of health promotion and education, observing a greater scientific empowerment of the participants since it provided a reduction of the weaknesses of knowledge on the subject. The professionals considered it important to prepare the educational material, clearly and objectively agreeing to a quick consultation to resolve doubts during work routines. Therefore, the study originated an educational material for the extension of learning that can be used continuously, generating preambles for other informative instruments to be developed in order to strengthen the educational process and knowledge construction in health.

As limitations of the study, we highlight the challenge for its explanation; bringing professionals together for moments of discussion on the topics addressed, due to the extensive routine of activities during shifts; difficulty in moving the team to a learning environment; and lack of motivation of professionals to develop other activities outside their work environment, such as participating in a moment of interaction between dental surgeons and nurses. Given this scenario, the booklets were distributed to the participants and other professionals, who mostly contributed to a greater dissemination of knowledge about and effective OH in the ICU environment as a means of preventing VAP.

CONCLUSION

Based on the studies and results found, we observed that institutions with defined protocols and high adherence of ICU professionals to the specific practices of OH care are able to reduce VAP rates. Hence, it is necessary to guide and train professionals so that they know, in addition to the technique, the importance of the procedure for the prevention of oral and systemic infections. The implementation of a OH protocol in the ICU acts as an indicator of quality of care and assesses the levels of VAP development. Moreover, it is suggested that the oral assessment is included in the medical and nursing prescription through a checklist prepared by the hospital infection control service so that it can be checked daily. This objective strategy may facilitate the systematization of procedures, also enabling a significant reduction in hospital expenses.

The authors declare that there is no conflict of interest.

Corresponding Author:
Milena Rayane de Andrade Teixeira
Address: Maria do Socorro Siqueira Gomes, São José, 36. Zip Code: 56700-000 – São José do Egito (PE), Brazil.
E-mail: milena_rayane@hotmail.com.

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